Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) An optical pickup driving apparatus for focusing an optical spot on a single-layer recording surface or a plurality of multi-layered recording surfaces of an optical information recording medium, comprising:

moving means of moving an objective lens for focusing said optical spot on said recording surface of said optical information recording medium in a direction of the optical axis of said optical spot; and

control means of controlling said moving means based on a voltage of a focus error signal based on reflected light from said optical spot,

wherein said control means controls said moving means so that said moving means moves said objective lens toward said recording surface, and when said control means detects that the voltage of said focus error signal has reached a first slice level voltage corresponding to displacement of predetermined magnitude from a reference potential, said moving means moves said objective lens toward said recording surface by a maximum of an upper limit of a predetermined amount of movement, and when the amount of movement of said objective lens has reached said predetermined amount of movement, said moving means moves said objective lens away from said recording surface, and

when said control means newly detects that the voltage of said focus error signal has reached a third slice level voltage corresponding to displacement of predetermined magnitude from said reference potential before the amount of movement of said objective lens reaches said predetermined amount of movement, said control means controls beam spot positioning so as to focus the optical spot.

2. (Cancelled)

3. (Previously Presented) The optical pickup driving apparatus according to claim 1, wherein the voltage of said focus error signal alters in positive and negative directions with respect to said reference potential according to the movement of said objective lens, and

said control means detects either a voltage higher or lower than said reference potential as said first slice level voltage.

4. (Original) The optical pickup driving apparatus according to claim 3, wherein said control means uses the voltage higher or lower than said reference potential as said first slice level voltage, whichever is detected first.

5. (Previously Presented) The optical pickup driving apparatus according to claim 1, wherein the voltage of said focus error signal fluctuates in positive and negative directions with respect to said reference potential according to the movement of said objective lens, and

said control means detects both a voltage higher and lower than said reference potential as said first slice level voltage.

6. (Previously Presented) The optical pickup driving apparatus according to claim 31, wherein said control means detects either a voltage higher or lower than said reference potential as said second slice level voltage or said third slice level voltage.

7. (Original) The optical pickup driving apparatus according to claim 6, wherein said control means uses the voltage higher or lower than said reference potential as said second slice level voltage or said third slice level voltage, whichever is detected first.

8. (Previously Presented) The optical pickup driving apparatus according to claim 31, wherein the magnitudes of displacement of said first slice level voltage, said second slice level voltage and said third slice level voltage from said reference potential are substantially the same.

9. (Previously Presented) The optical pickup driving apparatus according to claim 31, wherein the magnitude of displacement of said first slice level voltage

from said reference potential is greater than the magnitude of displacement of said second slice level voltage and said third slice level voltage from said reference potential.

10. (Previously Presented) The optical pickup driving apparatus according to claim 9, wherein the magnitudes of displacement of said second slice level voltage and said third slice level voltage from said reference potential are substantially the same.

11. (Currently Amended) The optical pickup driving apparatus according to claim 1, wherein said optical information recording medium has a plurality of multi-layered recording surfaces, and

said predetermined amount of movement is given by a moving distance L from ~~the~~ a current position of said optical pickup when said first slice level voltage is reached and said moving distance L is defined by:

(Formula 1)

$$L = d/n \times (1+c)$$

where d is a maximum value of the distance between said recording layers of said optical information recording medium, n is a refractive index of said optical information recording medium, and c is a sensitivity difference.

12. (Previously Presented) The optical pickup driving apparatus according to claim 1, wherein when said control means detects that the voltage of said focus error signal has reached a fourth slice level voltage at which the displacement from said reference potential is greater than the displacement of said first slice level voltage from said reference potential, said control means controls beam spot positioning so as to focus said optical spot.

13. (Previously Presented) The optical pickup driving apparatus according to claim 1, wherein said control means is formed on an integrated circuit.

14. (Previously Presented) An optical information reproducing apparatus provided with means of reading information recorded in an optical information

recording medium, said reading means using the optical pickup driving apparatus according to claim 1.

15. (Previously Presented) An optical information recording apparatus provided with recording means of recording information in an optical information recording medium, said recording means using the optical pickup driving apparatus according to claim 1.

16. (Previously Presented) An optical information recording/reproducing apparatus provided with recording/reproducing means of recording and/or reproducing information in/from an optical information recording medium, said recording/reproducing means using the optical pickup driving apparatus according to claim 1.

17. (Previously Presented) An optical pickup beam spot positioning method for focusing an optical spot on a single-layer recording surface or a plurality of multi-layered recording surfaces of an optical information recording medium, comprising:

a moving step of moving an objective lens for focusing said optical spot on said recording surface of said optical information recording medium in a direction of the optical axis of said optical spot; and

a control step of controlling said moving means based on a voltage of a focus error signal based on reflected light from said optical spot,

wherein said control step controls said moving step so that said objective lens moves toward said recording surface, and when it is detected that the voltage of said focus error signal has reached a first slice level voltage corresponding to displacement of predetermined magnitude from a reference potential, said objective lens moves toward said recording surface by a maximum of an upper limit of a predetermined amount of movement, and when the amount of movement of said objective lens has reached said predetermined amount of movement, said objective lens moves away from said recording surface, and

in said control step, when it is newly detected that the voltage of said focus error signal has reached a third slice level voltage corresponding to displacement of predetermined magnitude from said reference potential before the amount of movement of said objective lens reaches said predetermined amount of movement, control of beam spot positioning is performed so as to focus the optical spot.

18. (Cancelled)

19. (Previously Presented) The optical pickup beam spot positioning method according to claim 17, wherein the voltage of said focus error signal fluctuates in positive and negative directions with respect to said reference potential according to the movement of said objective lens, and

in said control step, either a voltage higher or lower than said reference potential is detected as said first slice level voltage.

20. (Original) The optical pickup beam spot positioning method according to claim 19, wherein in said control step, the voltage higher or lower than said reference potential is used as said first slice level voltage, whichever is detected first.

21. (Previously Presented) The optical pickup beam spot positioning method according to claim 17, wherein the voltage of said focus error signal fluctuates in positive and negative directions with respect to said reference potential according to the movement of said objective lens, and

in said control step, both a voltage higher and lower than said reference potential are detected as said first slice level voltage.

22. (Previously Presented) The optical pickup beam spot positioning method according to claim 32, wherein in said control step, either a voltage higher or lower than said reference potential is detected as said second slice level voltage or said third slice level voltage.

23. (Original) The optical pickup beam spot positioning method according to claim 22, wherein in said control step, the voltage higher or lower than said reference potential is used as said second slice level voltage or said third slice level voltage, whichever is detected first.

24. (Previously Presented) The optical pickup beam spot positioning method according to claim 32, wherein the magnitudes of displacement of said first slice level voltage, said second slice level voltage and said third slice level voltage from said reference potential are substantially the same.

25. (Previously Presented) The optical pickup beam spot positioning method according to claim 32, wherein the magnitude of displacement of said first slice level voltage from said reference potential is greater than the magnitudes of displacement of said second slice level voltage and said third slice level voltage from said reference potential.

26. (Original) The optical pickup beam spot positioning method according to claim 25, wherein the magnitudes of displacement of said second slice level voltage and said third slice level voltage from said reference potential are substantially the same.

27. (Currently Amended) The optical pickup beam spot positioning method according to claim 17, wherein said optical information recording medium has a plurality of multi-layered recording surfaces, and

said predetermined amount of movement is given by a moving distance L from ~~the~~ a current position of said optical pickup when said first slice level voltage is reached and said moving distance L is defined by:

(Formula 1)

$$L = d/n \times (1+c)$$

where d is a maximum value of the distance between said recording layers of said optical information recording medium, n is a refractive index of said optical information recording medium, and c is a sensitivity difference.

28. (Previously Presented) The optical pickup beam spot positioning method according to claim 17, wherein in said control step, when it is detected that the voltage of said focus error signal has reached a fourth slice level voltage at which the displacement from said reference potential is greater than the displacement of

said first slice level voltage from said reference potential, control of beam spot positioning is performed so as to focus said optical spot.

29. (Cancelled)

30. (Currently Amended) A ~~tangible~~ computer readable recording medium carrying a program of causing a computer to ~~function as said control means of the optical pickup driving apparatus according to claim 1~~perform the moving step and control step according to claim 17.

31. (Previously Presented) The optical pickup driving apparatus according to claim 1, wherein when said control means detects that said objective lens has reached a second slice level voltage corresponding to displacement of predetermined magnitude from the reference potential for the period of said backward movement, said control means controls beam spot positioning so as to focus the optical spot.

32. (Previously Presented) The optical pickup beam spot positioning method according to claim 17, wherein when it is detected that said objective lens has reached a second slice level voltage corresponding to displacement of predetermined magnitude from the reference potential for the period of said backward movement, said control step controls beam spot positioning so as to focus the optical spot.